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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/679,856	10/05/2000	Susamu Taketomi	30812	9173

7590 11/18/2003

MILBANK, TWEED, HADLEY & McCLOY LLP
1825 EYE STREET, N.W.
SUITE 1100
WASHINGTON, DC 20006

EXAMINER

STEIN, STEPHEN J

ART UNIT	PAPER NUMBER
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1775

DATE MAILED: 11/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/679,856

Applicant(s)

TAKETOMI ET AL.

Examiner

Stephen J Stein

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-54 is/are pending in the application.
- 4a) Of the above claim(s) 27-52 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 13-26 is/are allowed.
- 6) ☒ Claim(s) 1-6, 8, 11, 12, 25, 26, 53 and 54 is/are rejected.
- 7) ☒ Claim(s) 7, 9 and 10 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-26, 53 and 54, drawn to a composite, classified in class 428, subclass 325.
 - II. Claims 27-52, drawn to a method of forming a composite, classified in class 427, subclass 430.1.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be made by the materially alternate method of sputtering the particles into the glass.
3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
4. During a telephone conversation with Jay Alexander on November 14, 2003 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-26 53 and 54. Affirmation of this election must be made by applicant in replying to this Office action. Claims 27-52 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

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5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1, 2, 8, 25, 26, 53 and 54 are rejected under 35 U.S.C. 102(e) as being anticipated by US 6,150,027 (Yamamoto et al).

Yamamoto teaches a sealing glass for bonding to magnetic recording head which contains rare earth oxide crystalline particles have a particle size of 1-50nm (nanocrystals), where the rare earth element is one of Sc, Y, PR, Sm, Eu, Gd, Tb, Dy, Tm, Yb, or Lu (materials which alter the polarization of incident EMR)(col. 35, lines 25-60).

8. Claims 1, 2, 11, 12, 53 and 54 are rejected under 35 U.S.C. 102(b) as being anticipated by US 5,585,640 (Huston et al.).

9. Huston teaches a glass such Corning 7390 VycorTM (Thirsty Glass) having incorporated, nanocrystalline semiconductor particles such as ZnS nanocrystals (See abstract) (material which

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alter the polarization of incident EMR). Huston further teaches that nanocrystals have a particle size of 80 to 100 Å (8 to 10 nm) (col. 5, lines 63-67).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 2-6 rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto et al.

As stated above, Yamamoto teaches a sealing glass for bonding to magnetic recording head which contains rare earth oxide crystalline particles have a particle size of 1-50nm (nanocrystals), where the rare earth element is one of Sc, Y, PR, Sm, Eu, Gd, Tb, Dy, Tm, Yb, or Lu.

Although Yamamoto fails to teach the claimed amount of nanoparticles per square millimeter, absent a showing of criticality with respect to the claimed level of nanoparticles per square millimeter (a result effective variable), it would have been obvious to a person of ordinary skill in the art at the time of the invention to optimize the level of nanoparticles in order to achieve a desired level magnetic property. It has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

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Allowable Subject Matter

12. Claims 13-26 are allowed over the prior art of record.
13. Claims 7, 9 and 10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Reasons for Indication of Allowable Subject Matter

14. The following is a statement of reasons for the indication of allowable subject matter:

While the prior art teaches glass matrices comprising certain nanocrystals, the prior art having particle sizes less than 500nm which characterized by a property of altering polarization of scattered and reflected EMR, the prior art fails to teach or suggest rare earth ion nanocrystals as the nanocrystals in the glass matrix. Certain prior art of record, such as JP4062658367A (Taketomi et al.), teach a particle film of ultrafine particles of YIG (yttrium iron garnet) on a glass substrate, but fails to teach or suggest that the particles are embedded in the glass.

Conclusion

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen Stein whose telephone number is (703) 305-0583. The examiner can normally be reached on Monday through Friday from 8:30 a.m. to 5:00 p.m. If the attempts to reach the examiner are unsuccessful, the examiner's supervisor, Deborah Jones can be reached by dialing (703) 308-3822. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group Receptionist whose phone number

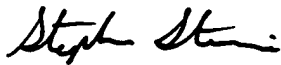
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is (703) 308-0661. The fax phone number for this group is (703) 872-9310 for non-final responses and (703) 872-9311 for after final responses.

November 16, 2003

A handwritten signature in black ink, appearing to read "Stephen J. Stein". The signature is written in a cursive, flowing style.

Stephen J. Stein
Primary Examiner
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